

ABSTRACT

A lithium secondary battery includes: a positive electrode including a positive electrode active material; a negative electrode including a negative electrode active material; and a non-aqueous electrolyte. The positive electrode active material comprises at least one lithium-containing composite oxide represented by the following general formula: $\text{Li}_x\text{M}^1_{1-y}\text{M}^2_y\text{O}_2$ where M^1 and M^2 are different elements, M^1 is Ni or Co, M^2 is at least one selected from Ni, Co, Mn, Mg, and Al, $1 \leq x \leq 1.05$, and $0 \leq y \leq 0.7$. The negative electrode active material comprises at least one selected from the group consisting of silicon, tin, a silicon-containing alloy, and a tin-containing alloy. At least one of the positive electrode, the negative electrode, and the non-aqueous electrolyte includes an organic peroxide. The above-mentioned combination of the positive electrode and the negative electrode makes it possible to improve battery capacity. Also, the inclusion of the organic peroxide in at least one of the positive electrode, the negative electrode and the non-aqueous electrolyte makes it possible to improve cycle characteristics.